ABSTRACT:

In this paper, a mesoscale numerical method was applied to solve two dimensional, incompressible, thermal fluid flow problem. This study presents numerical prediction of natural convection heat transfer inside an inclined square cavity with perfectly conducting boundary conditions for the top and bottom walls. The lattice Boltzmann scheme with uniform mesh resolution was applied as a numerical research tool. The inclination angels were varied from 20° to 160° with 20° intervals. The results were presented in terms of streamlines and isotherms plots, and average Nusselt number in the system. We found that the flow structure together with the heat transfer mechanism are significantly dependence on the magnitude of the inclination angles. Good agreements were obtained when compared with the results published by other researchers in previous studies.